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REMARKS

In view of the foregoing amendments and the following remarks, reconsideration and allowance are respectfully requested.

Claims 1-39, 41-49 are pending in the application, with Claims 1, 9, 25-27, 33-34, 39, and 46 being independent. No new matter has been added.

Claims 1-4, 10, 13-20, 22-24, 34, 36, 39 and 42-49 stand rejected under the judicially created doctrine of obviousness-type double patenting as allegedly being unpatentable over claims 1-5 of U.S. Patent No. 6,148,751 in view of Pollack (US 6027286). Claims 5-8, 11, 35, 37, 40-41 stand rejected under the judicially created doctrine of obviousness-type double patenting as allegedly being unpatentable over claims 1-5 of U.S. Patent No. 6,148,751 in view of Pollack and Smith. Claims 5-6, 8, 11-12, 35, 37-38, 40-41 stand rejected under the judicially created doctrine of obviousness-type double patenting as allegedly being unpatentable over claims 1-5 of U.S. Patent No. 6,148,751 in view of Pollack and Brahtz. Claim 21 stands rejected under the judicially created doctrine of obviousness-type double patenting as allegedly being unpatentable over claims 1-5 of U.S. Patent No. 6,148,751 in view of Pollack and Purcell, Jr. or Payne. Claims 25, 28, 30-32 stand rejected under the judicially created doctrine of obviousness-type double patenting as allegedly being unpatentable over claims 1-5 of U.S. Patent No. 6,148,751 in view of Shu et al. and Watson. Claims 25, 28, 30-32 stand rejected under the judicially created doctrine of obviousness-type double patenting as allegedly being unpatentable over claims 1-5 of U.S. Patent No. 6,148,751 in view of Pollack and Watson. Claim 29 stands rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-5 of U.S. Patent No. 6,148,751 in view of Shu et al. ("Shu") and Watson and Smith or Brahtz. Claim 29 stands rejected under the judicially created doctrine of obviousness-type double patenting as allegedly being unpatentable over claims 1-5 of U.S. Patent No. 6,148,751 in view of Pollack and Watson and Smith or Brahtz. Claims 1-4, 10, 13-20, 22-24, 34, 36, 39 and 42-49 stand rejected under the judicially created doctrine of obviousness-type double patenting as allegedly being unpatentable over claims 1-35 of U.S. Patent No. 6,349,664 in view of Pollack. Claims 5-8, 11, 35, 37, 40-41 stand rejected under the

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judicially created doctrine of obviousness-type double patenting as allegedly being unpatentable over claims 1-35 of U.S. Patent No. 6,349,664 in view of Pollack and Smith. Claims 5-6, 8, 11-12, 35, 37-38, 40-41 stand rejected under the judicially created doctrine of obviousness-type double patenting as allegedly being unpatentable over claims 1-35 of U.S. Patent No. 6,349,664 in view of Pollack and Brahtz. Claim 21 stands rejected under the judicially created doctrine of obviousness-type double patenting as allegedly being unpatentable over claims 1-35 of U.S. Patent No. 6,349,664 in view of Pollack and Purcell, Jr. or Payne. Claims 25, 28, 30-32 stand rejected under the judicially created doctrine of obviousness-type double patenting as allegedly being unpatentable over claims 1-35 of U.S. Patent No. 6,349,664 in view of Shu and Watson. Claims 25, 28, 30-32 stand rejected under the judicially created doctrine of obviousness-type double patenting as allegedly being unpatentable over claims 1-35 of U.S. Patent No. 6,349,664 in view of Pollack and Watson. Claim 29 stands rejected under the judicially created doctrine of obviousness-type double patenting as allegedly being unpatentable over claims 1-35 of U.S. Patent No. 6,349,664 in view of Shu and Watson and Smith or Brahtz. Claim 29 stands rejected under the judicially created doctrine of obviousness-type double patenting as allegedly being unpatentable over claims 1-35 of U.S. Patent No. 6,349,664 in view of Pollack and Watson and Smith or Brahtz.

Claims 1-4, 10, 34, 36, 39, 42, 46-49 stand rejected under 35 U.S.C. 102(e) as allegedly being anticipated by Pollack (US 6027286).

Claims 15-20, 22-24, 43-45 stand rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Pollack in view of Shu (US 6551029). Claims 13-14 stand rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Pollack. Claims 5-8, 11, 35, 37, 40-41 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Pollack in view of Smith (US 3894504). Claims 5-6, 8, 11-12, 35, 37-38, 40-41 stand rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Pollack in view of Brahtz (US 3762352). Claim 21 stands rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Pollack in view of Shu as applied to claim 20 above and further in view of Purcell, Jr. or Payne (US 3614032, 3763810). Claims 25, 28, 30-32 stand rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over

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Shu or Pollack in view of Watson (US 4300855). Claim 29 stands rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Shu or Pollack in view of Watson as applied to claim 25 above, and further in view of Smith '504 or Brahtz '352.

Claims 9, 26-27 and 33 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 40 has been cancelled without prejudice.

Double Patenting Rejection

A terminal disclaimer is being prepared and will be filed in due course to overcome the obvious-type double patent rejections to Claims 1-8, 10-25, 28-32 34-41, 42-49 in view of U.S. Patent Numbers 6,148,751 and 6,349,664, which are commonly owned with this application. The application claims priority to U.S. Application Serial No. 09/697,382, filed on October 25, 2000, now U.S. Patent No. 6,349,664, which is a continuation of U.S. Application Serial No. 09/213,597, filed on December 16, 1998, now U.S. Patent No. 6,148,751. The Applicant respectfully requests that the obvious-type double patent rejections to Claims 1-8, 10-25, 28-32 34-41, 42-49 be withdrawn, and those claims be put in condition for allowance.

35 U.S.C. 102 Rejections (Claims 1-4, 10, 34, 36, 39, 42, 46-49)

Claim 1

Claim 1 is patentable over Pollack because Pollack fails to anticipate each and every feature of the claim as arranged in the claim. For a claim to be anticipated by the prior art, it is necessary that a single prior art reference disclose each element of the claim under consideration. *Minnesota Mining and Mfg. Co. v. Johnson & Johnson Orthopaedics, Inc.*, 976 F.2d 1559, 1565 (Fed. Cir. 1992).

For example, Pollack fails to disclose the feature of the "sheath" as recited in Claim 1. Pollack discloses a method for a spar system that "minimizes the bending of upper portions of riser pipes that extend through guides at the bottom of the caisson, when the caisson drifts"

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(Pollock: Col. 2, lines 34-42). The Office Action asserts that reference numeral 156 in Pollack is a sheath. However, reference numeral 156 is the "caisson" and not a sheath. "FIG. 8 shows an example of thrusters 152, 153 mounted on the caisson 156" (Pollack: Col. 5, lines 61-63).

The caisson 156 cannot be a sheath as recited in Claim 1. Among other reasons, according to Webster's College Dictionary, a caisson is: "1. any of various structures used as a protective environment for workers, esp. one consisting of a pressurized, watertight chamber for use in underwater construction. 2.a. a float for raising a sunken vessel. b. a watertight structure built against a damaged hull to render it watertight. etc." In Pollack's usage, a caisson is a watertight floatation or buoyancy tank, specifically one that floats at the sea surface (Pollack: Col. 1, lines 10-13; Col. 2, lines 35-50). The sheath recited in Claim 1 would have little utility at the surface of the sea and being partly exposed to the air above the water as disclosed in Pollack. Because the boundary-layer control (BLC) system in the application is a submerged system, any riser pipes extending above the sea surface would not be subject to water currents. In contrast, a sheath surrounding the riser pipes as recited in Claim 1 provides advantages when the sheath is below the surface of the sea and applied to individual riser joints at various depths throughout the water-column.

Therefore, the Applicant submits that the 35 U.S.C. 102 rejection to Claim 1 is improper and should be withdrawn.

Claim 1 also is patentable over Pollack because Pollack fails to disclose preventing "hydrodynamic drag and vortex induced vibration (VIV)" as recited in Claim 1. Anticipation requires that each and every limitation in the claim be shown in a single reference, either expressly or impliedly (MPEP §§706.02 and 2131). Pollack discloses and claims a "spar" system (Pollack: Abstract). It is known to those skilled in the art in offshore engineering that a spar is a floating, moored, deep draft vessel engaged in production of undersea oil and gas. However, the BLC system of the current application is a submerged system and not a surface-floating vessel of a spar system. Because the BLC system is submerged, the BLC system is applied to riser pipes to protect the pipes from current-induced drag and vortex induced vibration

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(VIV). Because Pollack discloses a surface-floating vessel, Pollack does not anticipate each and every feature of Claim 1.

Claim 1 is further patentable over Pollack because the function of the nozzles in Claim 1 are not disclosed as the same or similar function of the nozzles disclosed in Pollack. For example, Pollack discloses that these nozzles are used to produce thrust. The thrust is used, either alone or in concert with mooring cables, to return to or maintain an upright posture of his floating caisson with attached riser pipe(s) when influenced by ocean currents (Pollack: Fig. 8; Col. 5, lines 60-67; Col. 6, lines 1-16). Pollack shows that such nozzles are replaceable by propeller-type thrusters and vice-versa, thus demonstrating that thrust production is the intended function (Pollack: Fig. 8). However, Claim 1 recites nozzles to discharge water and not to produce a thrust force. The nozzles of Claim 1 are configured and are used to energize the boundary layer in the current flow about the riser structure, thereby largely eliminating the hydrodynamic drag forces whose effects Pollack otherwise seeks to mitigate by force – which force must equal or exceed the drag forces. For at least this reason, the Claim 1 is patentable over Pollack.

Claim 1 is also patentable over Pollack because Pollack fails to disclose a direction of discharge of water from the nozzles relative to his caisson. Claim 1 recites that the nozzles discharge water in "a direction substantially tangential to the outer surface of the annular sheath". Not only is Pollack's caisson not a sheath, but Pollack's thrusters are shown as pivoting (Fig. 8). The pivoting indicates that all angles are desirable, and the thrusters are not restricted to discharge tangentially to a sheath surface.

Furthermore, the Office Action asserts that Pollack discloses "pumping water through the conduit" (Office Action: page 6, paragraph 19). However, Pollack fails to disclose such a feature. Quoting col. 6, lines 10-13 of Pollack: "Water pumped by pumps near the top of the caisson is forced through selected nozzles, creating forces to position the caisson." No conduit is mentioned in Pollack, specifically not an annular conduit between a riser and a sheath.

For at least these reasons, the Applicant respectfully requests that Claim 1 be put in condition for allowance.

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Claim 2-4, 10

Claims 2-4, 10 are patentable at least for depending on an allowable independent claim, Claim 1. Claims 2-4, 10 are further patentable for reciting allowable subject matter in their own right. For example, Claims 2-3, 10 are patentable over Pollack because Pollack fails to disclose the feature of a slot-nozzle. Claim 4 is patentable over Pollack because Pollack fails to disclose pumping water through a conduit, as argued above with respect to Claim 1. The Applicant respectfully requests allowance of Claims 2-4, and 10.

Claims 34, 39, 46

Claims 34, 39, 46 recite subject matter that is similar to Claim 1, and are patentable for at least the same reasons as described with respect to Claim 1.

Claims 47-49

Claims 47-49 are patentable at least for depending on an allowable independent claim, Claim 46. Claims 47-49 are further patentable for reciting allowable subject matter in their own right.

35 U.S.C. 103 Rejections

Claims 15-20, 22-24, 43-45

Claims 15-20, 22-24, 43-45 are patentable over Pollack and Shu, alone or in combination. Obviousness can be found only where the combined teachings of at least two prior art references would have suggested the invention to those of ordinary skill in the art. As argued above, Pollack fails to teach or suggest each and every feature of independent Claims 1 and 39. Claims 15-20, 22-24 are patentable at least because these claims depend upon an allowable base claim, Claim 1. Claims 43-45 are also patentable for depending on an allowable base claim, Claim 39.

Shu fails to remedy the deficiencies of Pollack because Shu is not a prior art reference. A reply to the action of July 11, 2003 was filed on November 11, 2003 that stated that the Specification had been amended to include a priority claim to U.S. Application Serial No. 09/697,382, filed on October 25, 2000, now U.S. Patent No. 6,349,664, which is a continuation of U.S. Application Serial No. 09/213,597, filed on December 16, 1998, now U.S. Patent No.

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6,148,751. The filing date of U.S. Patent No. 6,148,751 predates the priority date of Shu (Jan. 31, 2000). Therefore, Shu is not a prior art reference, and the 35 U.S.C. 103 rejection to Claims 15-20, 22-24, 43-45 in view of Shu is improper.

Claims 13-14

Claims 13-14 are patentable over Pollack at least because these claims depend upon an allowable base claim, Claim 1. Therefore, the applicant submits that Claims 13-14 should be placed in condition for allowance.

Claim 21

Claim 21 is patentable over Pollack, Shu, Purcell, and Payne, alone or in combination at least because the cited references fail to teach or suggest each and every feature of the claim. Shu is not a proper reference. Purcell and Payne fail to remedy the deficiencies of Pollack.

Purcell teaches a fuselage design for an aircraft. Not only does Purcell fail to teach each and every feature of the base claim, Claim 1, but Purcell is nonanalogous art. In analyzing obviousness, the types of prior art references that can be considered are limited. To ascertain the scope of the pertinent art, it must first be determined whether a particular reference of interest is within the field of the inventor's endeavor. *In re Deminski*, 796 F.2d 436, 442 (Fed. Cir. 1986). If not, then it must be determined whether the reference is "reasonably pertinent to the particular problem with which the inventor was involved." *Id.* The Office Action has not shown that Purcell is pertinent to this particular problem for the area of offshore oil and gas engineering. For at least these reasons, Claim 21 is patentable over the cited references.

Claims 25, 28, 30-32

Claims 25, 28, 30-32 are patentable over Shu, Pollack, and Watson, alone or in combination at least because cited references fail to teach or suggest each and every feature of the claim. Shu is not a proper reference. Watson fails to remedy the deficiencies of Pollack. For example, Watson discloses an ice-formation-prevention device with a cylindrical member having an elongated lower portion 22 and an enlarged head portion 24, in which the enlarged head portion 24 has fluid channels for outlets (Watson: Col. 5, lines 30-40; Fig. 1). However, Watson does not teach or suggest the features of Claim 25 as argued above with respect to Pollack.

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Claims 28, 30-32 are patentable for depending on an allowable base claim, Claim 25. For at least these reasons, Claims 25, 28, 30-32 should be placed in condition for allowance.

Claim 29

Claim 29 is patentable over Shu, Pollack, Watson, Smith, and Brahtz, alone or in combination, at least because cited references fail to teach or suggest each and every feature of the claim. Shu is not a proper reference. Smith and Brahtz fail to remedy the deficiencies of Pollack and Watson.

Brahtz discloses a floating ocean platform to use wave energy to reduce the need for expensive and variable mooring and propulsion mechanism (Brahtz: Abstract; Col. 1, lines 27-39). Smith discloses an ice cutting mechanism for a monopod drilling platform in which the cutters are mounted as radial arms on a sleeve that is concentric with a supporting column (Smith: Abstract; Col 1, lines 51-55). However, neither Brahtz nor Smith disclose each and every feature of the base claim, Claim 25. In addition to the arguments made with respect to Claim 25 above, the cited references fail to disclose "at least one pair of nozzles extending through at least one of the first and second cylindrical sections of the telescoping annular sheath". For at least these reasons, Claim 29 is patentable over the cited references, and the 35 U.S.C. 103 rejection should be respectfully withdrawn.

Claims 9, 26-27, 33 – Claim Objections

Claims 9, 26-27 and 33 are patentable at least because these claims have allowable subject matter and have been rewritten in independent form including all of the limitations of the base claim and any intervening claims (Office Action: page 9, paragraph 28). Proper allowance of these claims is respectfully requested.

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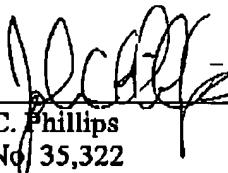
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Conclusion

In view of the amendments and remarks herein, the Applicant believes that Claims 1-39, 41-49 are in condition for allowance and asks that these pending claims be allowed. The foregoing comments made with respect to the positions taken by the Examiner are not to be construed as acquiescence with other positions of the Examiner that have not been explicitly contested. Accordingly, Applicant's arguments for patentability of a claim should not be construed as implying that there are not other valid reasons for patentability of that claim or other claims.

Please apply \$510.00 for the three month extension and any other charges or credits to deposit account 06-1050.

Respectfully submitted,



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